

**Show Transcript  
Deconstructing Dinner  
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**Title: Shocking Sugar**

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*Jon Steinman:* And welcome to Deconstructing Dinner, produced and recorded at Kootenay Co-op Radio in Nelson, British Columbia. My name is Jon Steinman.

Deconstructing Dinner is a syndicated weekly one-hour program available on both radio and as a downloadable podcast. And each week on this program, we take the time to better understand the food that we choose to put into our bodies, and by doing so, achieve a more critical understanding of how our food choices impact all that exists around us.

Now there's certainly no doubt that in many cases, after better understanding our food, the joy of eating may receive a few setbacks. Simply take a look at the frequency with which the health of the North American population is featured on the nightly news or in our daily newspapers. Often the last thing any of us want to hear is that we are consuming too many carbs, not enough carbs, too much fat, not enough vitamins, or too much cholesterol. And if health concerns are not enough to bog down your diet, well, here on Deconstructing Dinner, we even look past these health concerns and look at how our food choices impact culture, people, politics, and the environment. And to balance out the seemingly overwhelming burden of considerations one must then take when purchasing food, Deconstructing Dinner additionally aims to look at viable alternatives to these complicated choices. In the end, most of these alternatives place food on a far more intimate level with our daily lives, and ultimately leads to the joy of eating receiving a much-needed dose of energy.

But featured most frequently throughout the media is sugar. How North Americans are consuming far too much of it, how childhood obesity is now an epidemic, and how soft drink companies are partly to blame. But there's far more to the sweet stuff than the health crisis that it appears to have caused. And on today's broadcast of Deconstructing Dinner titled, "Shocking Sugar", we will take a closer look at the impact that sugar production is having on our planet. We will take a look at the conditions in which those who work in the industry are confined to. We will touch on the politics and economics that govern the influential price of sugar. And we will look to solutions and alternatives to these environmental, social and ethical concerns that accompany everything you buy that has had sugar added to it.

And to discuss this, we will be hearing from Dr. Jason Clay of The World Wildlife Fund or WWF, who will expand on the environmental impact of sugarcane farming and production. We will hear from Reykia Fick of TransFair Canada to discuss Fair Trade Certified sugar. Adony Melathopoulos of Agriculture and Agri-Food Canada will provide a critical analysis of honey as an ethical and sustainable sweetener. And rounding off the show, we will hear from David Richard of Vital Health Publishing who will shed light on the controversial alternative sweetener known as Stevia.

### **increase music and fade out**

*JS:* Shortly here on the program we will be hearing from Dr. Jason Clay of the World Wildlife Fund. But to first introduce the topic of today's broadcast, sugar, it's best to first take a look at a few statistics and facts in order to better understand this pleasurable yet dangerous ingredient.

In terms of current global production, 148 million tons of sugar are produced in the world. One million tons of that are produced here in Canada - a miniscule fraction of global production.

While the world price of sugar will be discussed later on the program, Canada has some of the lowest sugar prices in the world, and this is because Canadian sugar producers do not rely on subsidies, as is the case in the European Union and the United States. In Canada, seven of the ten provinces rank food processing as their number one industry, and this is thanks in part to sugar being available at prices averaging 40% less than in the United States.

But sugar as it relates to health, is the more commonly featured topic throughout the media. And for this reason, we won't be focusing on that during today's broadcast, because frankly, the debate between industry and what has become almost common knowledge, almost reads like the climate change controversy that has existed up until just recently. Countless studies have been released linking increased consumption of sugar to both obesity and diabetes, yet the industry considers it all a myth. And the Sugar Association of the United States features an entire section on their website to highlight these very myths. And you can find out more about the pressure the sugar industry exerts throughout the world by visiting the Deconstructing Dinner website, at [www.cjly.net/deconstructingdinner](http://www.cjly.net/deconstructingdinner).

### **soundbite**

*JS:* As sugar consumption remains as a concern for many Canadians, sugar cultivation and sugar production is too, taking a toll on the health of the planet and the well-being of people. To learn more about the environmental impacts of sugar production, I spoke over the phone recently with Dr. Jason Clay. Dr. Clay is the Vice-President for the Center for Conservation Innovation at the World Wildlife Fund's U.S. headquarters located in Washington D.C. Established in 1961, the WWF operates in more than 100 countries with the hope to stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature.

Jason has most recently been engaged in detailed examinations of the social and environmental impacts of commodity production, and he recently authored the book, "World Agriculture and the Environment," and that was published by Island Press. As I spoke with Jason, he began by indicating how historically-speaking, sugar production has had a devastating effect on biodiversity.

*Jason Clay:* Well historically I think there's pretty good evidence that sugarcane is one of the single largest causes of biodiversity loss around the planet. Mostly because it is grown in coastal areas; it's grown in tropical regions where there are islands and other sources of endemism where there is a unique biodiversity. And a lot of sugarcane production expanded very rapidly into these areas, was planted literally sea to sea on these islands, and wiped out pretty much everything that was there. So historically it has had a huge impact on biodiversity. Today the impact on biodiversity has been up to say 2005, a lot less because there hasn't been an expansion of sugarcane production. In fact, technology has increased, productivity per hectare has increased, there's been a lot of attempts to protect domestic markets so there's been less trade of sugar internationally. So there's been less and less expansion for foreign markets, etc.

*JS:* While the *current* impact of sugar production on biodiversity is nowhere near the level it was in historical terms, recent trends are seeing sugarcane as a lucrative alternative to the declining global supply of oil, and this is through the production of ethanol. And as Dr. Jason Clay indicates, this may very well lead to an indirect impact on biodiversity.

*JC:* That's all changing right now. And the reason it's changing is because of ethanol and the fact that sugarcane is a very good agricultural throughput to make ethanol. It's far more efficient than say corn or wheat or other sources that are often used in temperate zones. So with the price of oil increasing the demand for sugarcane is increasing as well. And countries like Brazil expect to double the acreage in sugarcane within five years and that will begin to have at least some impact on biodiversity. A lot of that is going to be land that is substituted from one crop for another. But in Brazil where land is taken up soya beans and put into sugarcane, then the soya beans are going to expand some place else and that could well be habitat that has not yet been converted to any agricultural use yet.

*JS:* The debate over fueling our planet using land on which food is already grown is one to be left for another broadcast of Deconstructing Dinner. But yet another environmental concern with any crop, fruit, or vegetable is that of soil degradation. Many tracts of land used to grow food have become so exploited, that often the only way in which food can continually be grown on that land, is through the practice of adding chemicals to the soil. But sugarcane farming degrades soil in ways unlike other crops.

*JC:* Well it's interesting. Sugarcane is a perennial crop and it's really a grass. And one would expect as a grass that it wouldn't really have such a big impact on soil erosion or on soil health, in general. But you would assume it would be better than

a lot of other crops. The problem is that at this point 80 – 85% of sugarcane globally is burned every year. And when you burn off all the crop residues that actually leaves the soil bare, makes it much more prone to washing away. But also, physically exposes the soil to sun and to wind and that also further deteriorates the quality. So you're taking all that organic matter and literally putting it up in smoke. And that's probably the single biggest reason that sugarcane has a high impact on the soil. We know from parts of Brazil where sugarcane is grown and harvested mechanically - where it's not burned, that in fact, you can actually increase soil organic matter every year with sugar production, in addition to harvesting the crop. So this doesn't have to be the case. It just is with the kind of technology that has been used in most of the parts of the world up to now.

*JS:* As Dr. Clay describes how the burning of sugarcane is a major concern for soil quality, he further explains why sugarcane is burned.

*JC:* Sugarcane is burned prior to harvest as a way to eliminate all the undergrowth. The owners often say that it is because workers in the tropics don't want to go into these fields, they are afraid of snakes – there'll be a lot of snakes in there. That's not usually the biggest reason. The bigger reason is that it's much slower to cut cane if you don't burn. Because there's a lot of waste product that has to be cut off of the individual canes that you're harvesting and bringing to the sugar mill. So if you don't cut it off in the field taking more time then it goes through your sugar mill which means you've got more throughput but not any more sugar so it makes your milling operations less efficient too. I think it all gets down to money really.

*JS:* And you're tuned in to Deconstructing Dinner. My name is Jon Steinman. And currently we are listening to clips from my conversation with Dr. Jason Clay of the World Wildlife Fund as he explains the environmental concerns associated with sugar. As Jason previously explained the process of burning sugarcane and the negative impact this process has on soil, he further explains concerns raised over the water pollution associated with sugarcane farming.

*JC:* From the point of view of pesticides and fungicides, sugarcane is probably better than some other crops - certainly better than things like cotton, better than often fresh vegetables and fruits, and citrus, and things like that. Where sugarcane has a problem is that because it's a grass and because it grows very fast, it uses a lot of nitrogen. And the nitrogen can be mobilized very quickly, particularly since there's not the organic matter on the surface. Because of the burning every year it gets mobilized into the fresh water streams and down river areas and then out into the oceans. So you can see a lot of nutrient plumes coming out of sugarcane producing areas and this is a major problem of most sugar-producing areas. Again if you stop burning it's one of the best ways to actually use less fertilizer and produce fewer pollutants coming out of the sugarcane fields. But it's not the kind of pesticide pollution that we're worried about. It's more the nutrient pollution.

*JS:* While our consumption of sugar is inextricably linked to water pollution, our North American hunger for sugar can also be considered a thirst for sugar.

JC: Well, sugarcane is often called a thirsty crop. And what that means is that it is a crop that uses more water to produce sugarcane than the previous habitat used to maintain itself. The reason that's important is if the crops you're growing use more water than the previous habitat did it means that they're taking that water from other potential downstream users so it means there's less water going into rivers. In fact some rivers are drying up in part because of the crops themselves that are taking that more and in part because of irrigation because sugar has to have water all year round whereas natural habitat was often able to live through dry spells because of deep root systems, etc. But sugarcane is a very thirsty crop, kind of like a tree plantation is.

JS: Looking past the issues of sugarcane cultivation, the milling process that extracts the sugar from the cane so too carries environmental concerns. And Jason explains.

JC: There's a fair amount of water that's used. So for example, for every litre of sugar by volume that you produce, you use ten litres of water to wash the cane off when it comes into the plant. The reason you have to wash the cane a lot in most parts of the world is because you burn, so you have to get rid of that carbon because it makes the sugar less than white, if you will. But in addition as you're refining your sugar you also produce a material called bagasse that sticks in your machinery. It is increasingly being burned and is actually a sustainable or renewable source of energy, producing the electricity that the mill uses itself. So in that sense, it's pretty good.

But one of the things that a number of sugar mills do, particularly in countries where they're not regulated, is once or twice a year they will back-flush their milling facilities and that means all the tiny bits of plant matter that are stuck on screens and filters, etc. get flushed out of the system. And this will be dumped into rivers – local rivers. What that does is begins to biodegrade in the river and as it biodegrades it takes out oxygen. And this is usually associated with really, really large fish kills.

I was travelling in Bolivia, oh it's been about ten years ago now, and was just on a river trip with my family and there had been a back-flush of one of these sugar mills and there were hundreds of thousands of fish dead along the sides of that river. It wasn't a very pleasant trip from an eco-tourism point of view.

JS: While our consumption of sugar can be seen to be inextricably linked to our planet's fragile environment, the effort that is made to minimize this impact differs widely between each sugar-producing country. But Dr. Jason Clay has been working with industry to reduce these impacts, and in the majority of cases, the practices being promoted are earning producers more money.

JC: The chemicals that can be used in some countries - the list of prohibitive chemicals is much longer, there are certain things you are not allowed to use because they are known to cause either cancer or other types of diseases or have posed by accumulation problems in tissue of mammals, etc. So there's that part of

it. There's also the issue that what comes out of sugarcane systems is in some cases more regulated. So for example, Brazil now has a system in place where burning is being phased out. You're not being allowed to burn and they're doing it gradually because it has labour implications. They're also phasing in a program where you have to plant trees along river and you can't plant the sugarcane right up to the river, which causes a lot of erosion too. So, there are different regulations that are much better.

What we don't see yet which is what groups like WWF and others who are interested in reducing the impact of sugar production are trying to do, is look at what those better practices or those regulatory systems are encouraging, and see whether it actually costs the producers more or make them more money. And as we do that analysis, we're finding the better practices in 65 – 75% of the cases actually pay for themselves. That producers who do sugar production in adopting better practices, eliminating burning, protecting/repairing in areas, not planting on steep slopes, doing all those kinds of things actually make more money.

*JS:* As more sustainable methods of farming are often thought of in relation to organic methods versus conventional ones, the organic production of sugar is not as viable of an alternative as one may think. And in some cases, organic production of sugarcane is worse off than conventional methods.

*JC:* Organic production doesn't really make any environmental claims and they certainly don't measure any environmental claims. What they say is that certain chemicals will not be used in production. These are synthetic chemicals but you can use actually natural chemicals. They don't by and large, look at or measure the amount of water that's used. They don't look at downstream kind of nutrients that are coming off of organic production and in many parts of the world we're finding that organic producers actually produce far more effluents that are getting into water systems than say conventional producers.

So, my sense about the organic sugar is that they don't use some of the chemicals but we would like to see all producers, whether conventional or organic, begin to actually measure current performance against five or six key impacts that sugar production like habitat, soil health, effluence, chemical use, worker health and safety, etc. Measure those and see how they are improving performance over time through their practices. Because ultimately, if we're going to make informed choices about what products to consume, we would really want to buy those products that actually reduce the key impacts of production. And until integrated pest management or organics or fair trade or even conventional or GMO or any of these different production technologies can begin to show you what they actually do on the ground, it's like apples and oranges – we don't know how to make informed decisions.

*JS:* And you're tuned in to Deconstructing Dinner – a syndicated weekly one-hour program that takes a closer look at the impacts our food choices have on ourselves, our communities, and the planet. On today's broadcast we look past the health impacts of sugar and look to the environmental impacts our love for the sweet stuff

is having on the planet. We are currently listening to clips from my conversation with Dr. Jason Clay of the World Wildlife Fund. And later on the program we will be hearing from Reykia Fick of TransFair Canada, who will shed light on an alternative method in which sugar is traded. We will also hear from Adony Melathopoulos of Agriculture and Agri-Food Canada, who will explain why honey is a sustainable and ethical alternative to sugar. And rounding off the broadcast we will hear from David Richard of Vital Health Publishing who will explain a relatively unknown natural sweetener known as Stevia.

## **soundbite**

*JS:* The discussion of commodities is one that poses many difficulties when speaking of them in terms of choice. Very often when a method of food production is seen to be unsustainable or unethical, an alternative is often available for us to switch over to. But in the case of commodities such as sugar, it becomes very difficult to pick and choose when the origin of sugar is never listed on a package. While regulations throughout the planet are different everywhere, we as the general public, have no way of knowing whether our sugar was produced sustainably or not. And this is a key reason why the WWF chose to begin working with industry, as consumers have no choice when purchasing conventionally-produced sugar.

*JC:* With some of these kind of ubiquitous commodities where the product is actually an ingredient that's only one of many things or even a relatively minor thing in a manufactured product, it's very hard for consumers to make a difference because there's the product that's on the shelf of the store and you either buy it or you don't. We're finding in our work on commodities that basically, 3 to 500 buyers that work with major food manufacturing companies make the purchase decisions for 80% of the commodities that change hands. And if they choose to buy better products then the consumer doesn't have a choice and they're going to buy better products too. If they choose to buy products that are produced in worse ways then the consumer doesn't have a choice either. So, our sense is, we would like to not give consumers a choice but we'd like that to be a good choice rather than a bad choice. We'd like these buyers to be looking at certified sources of sugar - sugar that's produced with lower inputs where you can actually measure. And that's why groups like the Better Sugar Initiative are working to set up metric-based standards that would allow that kind of thing to happen.

*JS:* While industry is making efforts to reduce their impacts on the environment, a key question still remains, and that is with the annual 2% increase in sugar consumption throughout the world, can efforts to make sugarcane a more sustainable crop keep up with this growth in consumption.

*JC:* One is, does sugar have a place in a healthy diet? Two, is sugarcane the best way to produce sugar? And three, what's the distinction between the U.S. versus other places with regard to diet? I guess I would say that the ways to produce sugar, sugarcane is by far the best. Sugar beet has far more impacts and is far less

viable economically than sugar from cane. Sugar beet would not exist without subsidies in the U.S. and Europe.

So from the point of view of both financial and environmental impacts, I would say sugarcane is hands down, the best option. Is there too much sugar in American diets – absolutely. But I don't necessarily think that's true globally though. Sugar is a source of energy in many countries. And while we may say that it's vacuous from a nutritional point of view, people do need to get calories all over the world. And sugar actually has traditionally provided some of those, if you look at places like India, or Pakistan, or other places. So I wouldn't say that we'd want the same standards for what the diet ought to be in different parts of the world.

*JS:* In concluding my conversation with Dr. Jason Clay, I asked him how the general public can best go about making more environmentally friendly choices when purchasing sugar and products containing sugar.

*JC:* With regard to sugar in a store, you don't even know whether it comes from cane or beets at this point in time. You don't know where it was produced in the world. You don't know if it originated from Brazil or from some other country much less Canada or the U.S. So I think it's very hard for a consumer to make a choice. You can make a choice between organic sugar and non-organic sugar, but I would say if you really want to look at what the environmental impacts are that may not be sufficient to really make an informed choice. I think around commodities that the consumer ultimately is going to have to depend on the food manufacturers to make better choices. And that means that those food manufacturers are going to have to start looking at and being able to show that they're choices of what they purchase are in fact reducing the impacts of that production.

*JS:* And that was Dr. Jason Clay – the Vice-President of Conservation Innovation for the World Wildlife Fund or better known as the WWF. Dr. Clay is based in Washington, D.C. and more information about his work can be found on the Deconstructing Dinner website under the title for today's broadcast "Shocking Sugar." And that website is [www.cjly.net/deconstructingdinner](http://www.cjly.net/deconstructingdinner).

### **soundbite**

*JS:* Before moving on to my next guest on today's broadcast, it is perhaps of interest to take a quick listen to the incredible effort the sugar industry takes to convince the general public that sugar is a wonderful ingredient. As has been featured on today's broadcast, the production of sugar is very often not in balance with its natural surroundings. And that aside, the incredible amount of refining required to extract sugar is certainly far from natural. But the Sugar Association in the United States aggressively markets sugar as being both natural and containing few calories. And the following is one of these advertisements used by the industry.

### **Sugar Ad:**

Car honking: "Byeeee."



*Grandma: "No parents for two full days. Now we girls can have some fun."*

*Little Girl: "If you say so."*

*Grandma: "I've got an idea. Let's go bake a batch of my old fashioned sugar cookies."*

*Little Girl (excited): "Really? Can I help?"*

*Grandma: "Help? You are the baker in charge! (Laughs) Okay, now measure this much sugar and put it in ..... oh...oops". (sound of sugar spilling and laughter)*

*Little Girl: "We're sure making a mess."*

*Grandma: "That bowl moved. I saw it."*

*Little girl: "This is fun."*

*Grandma: "Oh yeah (girl laughs) anything you bake with sugar just tastes better because it's all natural. The very same sweetener Mother Nature uses. And sugar is just 15 calories a teaspoon."*

*Little Girl: "But you don't want us making a mess do you?"*

*Grandma: "This is your mother's house and I owe her big time. Now let's get these cookies in the oven." (girl giggles)*

*Female: "Pure, all natural – sugar. Sweet by nature. For fabulous recipes, visit [sugar.org](http://sugar.org)."*

*JS: And along with those recipes, you can find out more about the tactics used by the Sugar Association, by again, visiting their website at [www.sugar.org](http://www.sugar.org).*

As has yet to be mentioned on today's broadcast, sugar has only become a staple ingredient of the world's diet, due largely in part to slavery. While slavery may be seen as a horrible era that has come and gone, many argue that the conditions in which slaves were confined on sugar plantations has never disappeared. To compound the issue, the price of sugar has drastically decreased in the past 25 years, to the point where millions of families are unable to cover their living costs by working on sugar plantations. And to combat these conditions, the Fair Trade movement was born. And sugar is one of the many commodities now regulated under Fair Trade Standards. But while fair trade sugar still only comprises a small segment of global sugar production, the segment is growing rapidly with a 79% global increase in sales in 2003 and a 150% increase here in Canada. The only national independent third party certifier of Fair Trade products in Canada, is TransFair Canada and they're based in Ottawa. TransFair Canada is the final body that ensures that the standards created by the Fairtrade Labelling Organization are met. Now the Education and Outreach Coordinator for TransFair is Reykia Fick. And we recently spoke over the phone on the topic of fair trade certified sugar.

*Reykia Fick: There are a lot of issues associated with the production and trade of sugar in the conventional market. With regards to the production, the sugar industry is highly biased away from small family farms towards large plantations where most sugar is grown. This makes it very difficult for the small family sugar farms to earn a living and be able to sell their goods. And there are a lot of issues associated with the large plantations where most of the sugar is being grown. These include environmental impact because a lot of the plantations are monocultures. It's a very intensive use of the land which leads to soil depletion and erosion and there are also large quantities of chemical fertilizers and pesticides that*

are used. And this causes a lot of harm to the local ecosystem as well as health problems among the plantation workers. There's also a real issue with labour conditions on many of these large sugar plantations. There are many cases of abusive or exploitative working conditions for plantation workers. And this includes irregular payment, underpayment, forced overtime, inadequate housing, forced payment of company fees, or overpriced basic goods, like food.

*JS:* The very existence of fair trade sugar indicates that the remainder of sugar is therefore traded unfairly. And Reykia explains the imbalance that creates this unfair trading environment.

*RF:* Within the realm of trade, sugar is unique compared to many other primary products that are grown in the south like tea or coffee in that sugar is also produced in the north. In the south it's produced from sugarcane; in the north sugar is produced from beet root. So, due to high restrictive tariffs within the United Kingdom, United States, and other countries within the north, as well as high subsidies, this will put small farmers in small resource-producing countries at a great disadvantage because it's led to low and volatile sugar prices within the international market. For example, the price of sugar has fallen to about a quarter of the price that it was 25 years ago. It's very unstable. So, it's really not a level playing ground for small producers in the south.

*JS:* While fair trade is widely viewed as an approach to address unfair prices paid to workers, fair trade certification goes far beyond just addressing this key concern, and Reykia explains.

*RF:* Many people think about fair trade in terms of the minimum price and this is a very important aspect of the fair trade system. But fair trade is really about much more than just the minimum price. It's a whole system of centres for production and trade of fair trade goods. With regards to sugar it's a minimum price for sugar is about three to four times greater than that in the conventional market. So it really makes a significant difference.

This price also includes a fair trade premium which is additional money on top of covering the cost of production that are given directly to the cooperative, the producer cooperative for them to invest back into their communities through infrastructure or social services, whatever they deem to be necessary for their communities.

Fair trade also guarantees a direct and stable relationship between producers and buyers. Importers of fair trade products must commit to a long-term relationship with producer cooperatives. As well, buyers of fair trade certified sugar have to grant up to 60% of the value of their contracts to farmers who need credit. So farmers are guaranteed access to credit.

With regards to production standards, for fair trade certified sugar, producers are small family farms that are organized into democratically run cooperatives. The cooperatives have to be transparent and run on the basis of non-discrimination.

And this is very important especially from proving the conditions for women because they are included within the decision-making processes. Producers must also follow basic labour and environmental standards. The international labour organization conventions must be followed including no forced labour or child labour of children 15 years old and under. Children that are aged 16 and older cannot be doing work that compromises their health or education.

The producers must also follow national and international environmental regulations. And this includes that they can't use pesticides that have been banned and they have to implement a system of integrated crop management which uses a number of strategies to balance agricultural production and economic concerns within environmental sustainability and protection. Producers within the fair trade system are encouraged to move towards organic production and actually a significant portion of fair trade certified sugar is also certified organic.

*JS:* To better illustrate some of the conditions in which many sugar plantation workers live, Reykia refers to one example taking place in the Dominican Republic.

*RF:* One case that I'm aware of, of especially difficult conditions for plantation workers are the 150,000 seasonal labourers from Haiti who work on sugar plantations in the Dominican Republic. Before being able to work on these plantations the potential sugar labourers must pay high fees and expenses to the Haitian officials in charge of hiring. Once on the plantations in the Dominican Republic, Haitian workers must continue to pay high prices for their food and other basic needs. After expenses, the cut taken by company officials and company taxes, the salary of Haitian sugar labourers is reduced to almost nothing. Sometimes not even enough to cover their basic costs and forces them into debt to the plantation company.

Plantation labourers in the Dominican Republic live in overcrowded, poorly ventilated houses they must build themselves on plantation land. The houses lack basic necessities like windows and ventilation, furniture, running water, and proper sewage systems. And although many Haitians would like to escape from this system it's very difficult because their work permits are only given to them to work on a particular plantation. And often their salaries are withheld for long periods of time, so leaving from these difficult conditions would mean losing the income that is owed to them.

*JS:* It is certainly evident that our choice to purchase sugar or foods containing sugar has an incredible impact on the environment and on the conditions in which millions of families spend their lives. And TransFair acts as the certification body assuring the general public that global fair trade standards are adequately met. TransFair achieves this through a logo which producers pay a fee to include on their products. And Reykia describes the number of fair trade producers here in Canada who are using this logo to sell fair trade sugar or fair trade products containing sugar.

*RF:* There are 16 companies or organizations that are licensed by TransFair Canada to sell Fair Trade Certified sugar. And these include both companies that sell the sugar itself as well as products that include sugar as an ingredient. So fair trade sugar is now available in chocolate, ice cream, baked goods, and a whole variety of products. In order for these products to be called Fair Trade Certified and have the TransFair logo on them, every ingredient that is available in fair trade must be fair trade certified within the product and the Fair Trade Certified ingredient has to make up at least 20% of the dry weight. Otherwise Fair Trade Certified ingredients in sugar can still be a part of the product but the product itself cannot be labelled Fair Trade Certified.

*JS:* And that was Reykia Fick, the Education and Outreach Coordinator for TransFair Canada. You can find out more about the organization and view a list of producers using the fair trade logo by visiting their website and that website is [www.transfair.ca](http://www.transfair.ca). And you can additionally find out more information on today's broadcast at [www.cjly.net/deconstructingdinner](http://www.cjly.net/deconstructingdinner), where this broadcast will also be archived.

### **soundbite**

*JS:* If you are just tuning in, this is Deconstructing Dinner – a syndicated weekly one-hour program that takes a closer look at the impacts our food choices have on ourselves, our communities, and the planet. On today's broadcast entitled "Shocking Sugar," we have now taken a look at the impact our love for sugar has on both the environment and on those working on sugar plantations. But what has not yet been mentioned, is how sugar travels an incredible distance to eventually make its way into Canada. While Canada does retain a small sugar beet industry, 92% of sugar produced in Canada is imported from places such as Australia, the Caribbean, and Central and South America. This distance travelled has an incredible impact on the environment and while this may seem like yet another roadblock to achieving a fully sustainable and local diet, in almost every part of Canada there is an alternative.

And to discuss this alternative, I spoke with Adony Melathopoulos – a Research Technician with Agriculture and Agri-Food Canada. Adony is a graduate of Burnaby's Simon Fraser University who now conducts research on honey bees in Beaverlodge, Alberta. Adony recently compiled an article for the Canadian Honey Council's website titled, "Honey as Canada's Ethical and Sustainable Sweetener." In this article Adony refers to sweets as being the SUVs of the food world, and he explains what inspired him to put this article together.

*Adony Melathopoulos:* Now it came kind of from two directions, the first one is a personal direction. I have good friends that are organic farmers in Pouce Coupe British Columbia, Tim and Linda Ewert. And they have an elegantly sustainable farm. A lot of the work is horse drawn and a lot of the loops of inputs that I'm used to agriculture are tied up and held with on the farm. And as a beekeeper looking in at that system I wondered if honey played a part in a sustainable farm.

Tim was quick to point out to me that in our region and northern farming communities in the Peace River that honey is the only sweetener available. It's the sweetener of this region, and he really wanted to have bees on that farm. He felt it was a part of a sustainable farm. He grows legumes for his livestock and they often go to flower and the bees use those flowers that are just sitting there – full of nectar, the starting point of honey and produce a honey crop off of it.

So initially being drawn to sustainability and being enlightened by this organic farmer that honey, especially in many parts of Canada where there's no indigenous sweetener that can be grown, it really plays an important role in local sustainability. But I wasn't satisfied there. I wanted to go in a little deeper and understand the magnitude of that sustainability, so I went into research it. It had been done all around the world looking at this Life Cycle Analysis where you could take to understand the best choices a person can make they will look at the impacts of a product from the point they're originally created to when they are consumed - sort of assess that impact over an entire lifespan.

*JS:* As Adony further explored the Life Cycle Analysis of different foods, he explains what he found that convinced him to write an article on "Honey as Canada's Ethical and Sustainable Sweetener."

*AM:* I found a lot of life cycle analysis of mainstream sweeteners like corn syrup or beet and cane sugar, but I had a hard time finding honey and those studies until I came across a study from Sweden which the authors calculated the energy of 300 items in the Swedish diet. And they wanted to do this so that they could look at the sweetest foods that people eat and try to form a policy to produce the energy used in the food system. And what caught my eye immediately is I found honey on that list of 300 items and compared to other sweeteners had a significantly lower amount of embodied energy - energy taken to produce, process, and get it to the consumers. So that kind of traces that whole history from when I initially became interested to the point where I wrote the article.

*JS:* As Adony discovered, the difference in energy required to produce and transport honey versus that of other sweeteners was significant, and he explains the study's findings.

*AM:* It was quite shocking. The caveat in the study is that the sugar that was analyzed in the study, Scandinavia does have a sugar beet industry so it was local sugar. It's not the case as in Canada where 90% of our sugar comes from either Australia or Cuba. This is domestic sugar so the cost of transport is minimal. But even with that, it took ten times less energy to produce domestic honey than to get the domestic sugar to the table.

And there's also an interesting other element in this study where they looked at honey that had been shipped from overseas. Of course when you transport food, something bulky like honey, even if you are using an efficient system like a ship transport, it still takes a lot of energy. As a consequence, it's five times more

energy required to get that honey to a Swedish consumer from overseas than if it was made domestically.

*JS:* While some of the energy requirements of sugar were touched on previously on this broadcast by Dr. Jason Clay, Adony Melathopoulos further explains the energy requirements of some of the major sweeteners used in food.

*AM:* I think there's a real difference between honey and other sweeteners. For one thing, you don't grow a crop for honey. Bees harness the nectar that is being produced incidentally from a crop. So right off the bat all other sweeteners that I'm aware have this production cost. There's a cost for putting the crop in the ground - for the inputs for fertilizing and harvesting which in beekeeping you don't have to plant the crops. Of course you have to harvest the honey but it's really minimal compared to other sweeteners. And you think about what the major sweeteners that we depend on are corn, cane, and beets and they're heavy feeders. They require extreme amounts of nitrogen to keep that crop in production and make it profitable. So right off the bat that's taken off when you're making the choice to eat honey.

The other thing is transport. And this rung true to me when I considered my region - the Peace River country. Honey can be produced right here. There's no transportation cost. Right across Canada every province has a beekeeping industry if it has agriculture. But when we look at something, either corn syrup has to come up from the U.S. or cane sugar is coming from offshore so the transportation cost is also a huge element.

Finally it's the refining costs. You think about something like corn. It's a wet material and you have to get that sugar out of the corn and the process is extremely energy-intensive. I saw one estimate stating that 15% of the processing energy used in U.S. agriculture was just to wet-mill corn. And you consider that by contrast to beekeeping where there's no refining step, that honey that's brought into the comb is the same honey that gets put into the jar.

And so on all three of those points I think honey has a real advantage in terms of sustainability.

*JS:* And you're tuned in to Deconstructing Dinner. We are currently listening to clips from my conversation with Adony Melathopolous of Agriculture and Agri-Food Canada, as he explains why honey, presents a sustainable and ethical alternative to the many negative impacts resulting from our love for sugar and sweeteners. In better illustrating the difference in energy requirements between honey and other mainstream sweeteners such as sugar, Adony explains the very simple process of making honey.

*AM:* Honey is a pretty magical product. A lot of processes are photosynthetic. You have the sun coming down to the plants and frequently they're agricultural plants but often they're wild plants. And it's an intricate longstanding relationship between bees and flowering plants. The flowers produce a sugary substance from the sun

and they concentrate it in the flowers. The bees go and pick that substance that is called nectar. And they bring it back to the colony and they dry it down and kind of do the refining stuff themselves. It's all powered on this nectar. They go out, they use the nectar to power their bodies, they use the nectar to dry and process that honey and dry down to the point that it doesn't spoil. And then the beekeeper then will come along and take that honey out of the colony. And the processing step is very minimal. All they do is they take that honeycomb and they spin it very gently with a small motor and that forces the honey out of the comb. And then it's collected into a tank after some of the wax is separated out. And basically, that's the product that finds its way into your home.

Now, there are some inputs. Some sugar is used to get the bees through the winter. That honey that they make is made for the purposes of bringing them through the winter. But the pertinent detail is that bees produce a lot more honey than they consume sugar – almost a 10:1 ratio of the amount of calories you have to put in to get them through winter than the amount of calories they produce for you in the summer. So it is a real winning proposition in that sense.

The final thing to point out, is that the majority of Canadian honey comes from, well not the majority but a large portion of it comes from leguminous plants; that are fixing nitrogen and agricultural fields. And of course, fertilizer is a large agricultural input, so bees are playing a part in the production of seed for making natural fertilizer.

*JS:* As Dr. Jason Clay of the WWF explained earlier on today's broadcast, sugarcane farming had historically one of the greatest global impacts on biodiversity. As Dr. Clay described the current situation, the increasing desire to produce ethanol from sugarcane may very well lead to more land being cleared. But honey, on the other hand, requires very little land.

*AM:* One interesting element in beekeeping, I think the reason why there is such a diversity of farmside is because you don't require any land. Beekeepers pretty much don't own any land. They have a small acreage where they locate their honey housing and that's where they extract the honey. But basically, everything else is on other people's lands. Beekeepers will move bees on to nice clover fields in the summer. And right off the bat there is no land that is plowed up specifically for honey bees. There is a number of equipment that beekeepers have to travel out with trucks to collect the honey. But I think if you compare the outlay and the amount of equipment that is required in beekeeping to a viable family farm operation, the equipment is much smaller; there are no tractors, there's no array of harvesting equipment or seeding equipment that they use – it's a much smaller process. There's not much footprint on the land with beekeeping.

*JS:* Looking past the minimal energy and land requirements of honey, honey bees additionally have an incredible impact on the productivity of surrounding farms.

*AM:* Eating honey is one thing having a sweetener is great. When Tim and Linda invited me onto their land that put some bees their primary interest was pollination.

They have raspberry canes there and they wanted to maximize – they put so much energy, manure and just management techniques to make sure they get the optimal raspberry harvest. The amount of energy that they put into those plants they get the maximal yield.

Bees provide increase in yield with virtually no cost. Bees go out into a field and they transfer pollen from plant to plant. And this pollen is extremely important in seed set for many things, raspberries, apples, oil seeds. Without the bees being in high enough numbers in that crop, the amount of return that you'll get for the energy that you put into that farm will be significantly reduced. And in some crops it's minor but in other crops it's essential. Cranberries for example, if you do not have bees in a cranberry field, there will be a crop disaster. So the bees provide this free low energy benefit to agriculture as a whole. And that's the real key to supporting beekeeping, it has that effect.

*JS:* And you're tuned in to Deconstructing Dinner, as we explore honey as an ethical and sustainable alternative to the common sweeteners we find in our foods. While refined sugar retains no nutritional value except for calories, Adony Melathopolous speaks of the nutritional value of honey by first questioning whether we are consuming a sustainable amount of sweetener to begin with.

*AM:* Well you know, I think this is a critical question when you were speaking earlier about honey couldn't possibly replace our current consumption of sweeteners. The beekeeping industry would have to grow to some impossible size to meet that demand. I think that the way to look at that question is to say, are we eating a sustainable amount of sweetener to begin with. I think many experts would agree our consumption of sugar - caloric sweeteners is way too high. If we were to take our consumption of caloric sweeteners down to the level that dietitians recommend that we have, I think you could replace a large portion of your sweetener with honey. And currently, at least 35 kilograms of sugar and syrups are consumed by Canadians per year. There's one kilogram of honey consumed per year.

To come around to your question, I think honey can take a lot of that burden off. But having said that, I think a caloric sweetener is a caloric sweetener and it would be foolish to think that whatever minor health benefits honey may have can offset - you can't just replace all the corn syrup you eat with honey and expect these health benefits to kick in. There is in fact some research into honey looking at the medicinal effect on infections. Honey has incredible antibacterial properties and it has been shown to be able to help cure wounds, peptic ulcers, gastritis, diarrhea. There are also some studies that demonstrate that when you add darker coloured honey to a beverage, your ability to deal with antioxidants – cancer-causing antioxidants, that capacity increases.

Having said that, I think that if you really want to guard yourself against cancer – eat leafy greens. Dietitians – there's a whole bunch of things you can do. I think the critical point is – honey is a real sustainable alternative to sweeteners. We eat way too many sweeteners. I think a very sustainable strategy is to cut back on the



sweeteners that have this high energy demand and high environmental impact and reign in all your sweetener consumption and then replace it with something that is a little bit more sustainable. And I think that's affordable and do-able proposition in Canada.

*JS:* And that was Adony Melathopoulos – a Research Technician for Agriculture and Agri-Food Canada. He conducts research on honey bees in Beaverlodge, Alberta, and you can take a look at his article that inspired this interview by visiting [www.honeycouncil.ca](http://www.honeycouncil.ca). And there will additionally be a link to the report by Dr. Carlsson-Kanyama located on the Deconstructing Dinner website at [www.cjly.net/deconstructingdinner](http://www.cjly.net/deconstructingdinner).

### **soundbite**

*JS:* My last guest on today's broadcast will expose yet another alternative to sugar, and this alternative remains rather unknown to us in North America, and that is the natural sweetener known as Stevia. David Richard, the Publisher at Vital Health Publishing located in Ridgefield Connecticut authored a book about Stevia, and I spoke with him over the phone to learn more about what he calls, "nature's sweet secret".

*David Richard:* Well my experience with Stevia started about 10 or 12 years ago when I was exporting it from China in the form of an extract. And I wanted to get someone to write a book about it because no one seemed to know about it. There was no literature, public domain literature out there telling the general public what Stevia was. So I began to research it myself and ended up writing a book which came to be titled, "Stevia Rebaudiana: Nature's Sweet Secret." Regarding the Stevia plant itself, it was discovered by an explorer Moisés Santiago Bertoni, when he was in Paraguay. And he found this plant that the natives told him was very sweet and so he categorized the plant and it later developed that an extract could be made of the plant which was even sweeter than the plant itself. So Stevia, the small herbaceous plant that originated in Paraguay now is grown all over the world and it's, as I said, very sweet and the leaves of the plant are about nine times sweeter than sugar. When you extract it and there's different ways of doing that, whether it's a liquid extract or a powdered extract, you can derive a product that is 200 to 300 times sweeter than sugar.

*JS:* Stevia can be found in a number of different forms and David Richard explains.

*DR:* You can grow the plant yourself for a start. You can get it in a bulk green powder, which is just the dried leaves which have been ground up. You can also then create a crude liquid extract which is just putting the leaves themselves in some sort of menstrum whether it's water because some of the glycosides are water soluble so you can derive some of the sweetness from the leaf just from the water extract, or an alcohol extract.

In addition there are more complex extracts which result either a colour powder or a pure white powder and those extracts are the super sweet ones and they focus on certain specific glycosides that occur in the Stevia plant.

*JS:* While Stevia may seem like an ideal alternative to sugar, the politics surrounding this sweetener are a great illustration of the stranglehold large corporations have on our food supply here in North America. While Stevia has been approved for decades in countries such as Japan, Korea, China, Taiwan, and throughout South America, Stevia is not approved as a food additive in the European Union, the United States, and here in Canada.

Some of the most recent research on Stevia was conducted in Southern Ontario by Agriculture and Agri-food Canada as they looked at the viability of Stevia to potentially replace the tobacco farms located in that part of the province. Yet with all this research and its prevalent use worldwide, Stevia is only approved in Canada and the United States as a dietary supplement. And David explains.

*DR:* I think there's an underlying reality going on - economic reality there. We have a situation in our culture where companies are able to patent certain sweeteners and artificial sweeteners and have proprietary position which they seek to protect, you know with those products. You have products like aspartame, all of which seek protect their position in the market. And Stevia has no such protective position because as a common herb and not a synthetic product you can't patent it. You can create different extractive processes these but these don't exclude anyone else from coming in the markets. So, there's an economic reality which favours these artificial sweeteners in terms of lobbying efforts that these major corporations are able to focus on. And I think that that's the underlying reality that's kept Stevia off the market in some of these more industrial countries - the U.S, Canada, and Europe.

Now in the U.S. because they couldn't prove that Stevia was harmful, there was kind of a compromise worked out. Where, and Canada as I understand it as well, where Stevia was allowed as a dietary supplement but not as an approved - a GRAS approved food substance. Well, that's a bit ridiculous in my opinion because if you allow it on the market, you know it's certainly an herb and a food product. But if you allow it on the market as a dietary supplement but not a food product you are giving the consumer a kind of strange mixed message. In one sense I'm happy that it's on the market and in another sense it doesn't make sense.

*JS:* And that was David Richard of Vital Health Publishing. And to follow-up on the release of David Richard's Stevia book, Vital Health Publishing released a book featuring recipes that use Stevia instead of sugar. And you can find out more about these books by visiting [vitalhealthbooks.com](http://vitalhealthbooks.com).

## **theme music**

*JS:* And that was this week's edition of Deconstructing Dinner, produced and recorded in the studios of Nelson, British Columbia's Kootenay Co-op Radio.

I've been your host, Jon Steinman. Should you have any comments about today's show or want to learn more about topics covered, you can visit the website for Deconstructing Dinner at [www.cjly.net/deconstructingdinner](http://www.cjly.net/deconstructingdinner).

Till next week.